<u>REMARKS</u>

Claims 1-25 were pending. All stand rejected. By the above amendments, the applicant has amended claims 1, 15-19 and 25, and added new claims 27-32. The applicant requests further consideration and re-examination in view of the remarks set forth below.

To summarize prosecution of the subject application so far, three non-final office actions were issued, each relying on a different combination of references to reject the applicant's claims. In response to each of these office actions, the applicant pointed out how the claims patentably distinguished over the cited references. In a fourth office action, the rejections of the third office action were made final. Believing the final rejection to be improper, the undersigned requested an examiner interview, though no progress was made. The applicant then submitted a pre-appeal brief. In a panel decision, the final rejections were withdrawn and prosecution was reopened. The current office action mailed on May 10, 2006, is the sixth office action in the application (including the three non-final actions, the final action and the advisory action).

As explained in detail below, the claims are patentable over the references being relied upon in the most-recent office action. In view of numerous actions having been issued and rejections overcome, the applicant submits that the claims have been thoroughly examined and are now due for allowance. Allowance at an early date would be greatly appreciated.

<u>Claim Amendments:</u>

Claims 16-19 are amended to improve their clarity. Particularly, they are amended to state that the recited routine "supports accessing" the data as a logical volume (claim 16), an image copy (claim 17), a file structure (claim 18) or at least one specified file (claim 19). These amendments are supported by the applicant's specification at least at page 7, line 13 to page 8, line 4, where it describes using the routines to access the data as though the data were an image backup, logical volumes, a specified file or an entire file system. Claim 25 is amended to improve its clarity by consistently referring to the data storage medium as such. Other claim amendments are discussed below. No new matter has been entered.

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Rejections under 35 U.S.C. § 102:

Claims 1-4 and 6-25 are rejected as being anticipated by U.S. Patent No. 6,591,376 issued to VanRooven et al. (hereinafter "VanRooven").

The applicant respectfully traverses the rejection. As recited in claim 1, the present invention is directed toward a method of retrieving data from a data storage medium. A program is loaded from the data storage medium into a computer system, the program including at least a first routine for responding to a first request type for access to the data storage medium and a second routine for responding to a second request type for access to the data storage medium. A request is received for access to data stored on the data storage medium. A determination is made as to whether the request is of the first type or the second type. The first routine for accessing the data is called when the request is of the first type and the second routine for accessing the data is called when the request is of the second type. The requested data is presented.

The applicant has amended claim 1 to clarify that the first and second routines are for accessing the same data. This features is supported by the applicant's specification at least at page 7, lines 5 to 26 where it describes that the different requests for access are for the same data 102-106. In addition, the applicant has amended claim 1 to clarify that the data is stored in accordance with an archival format. This feature is supported by the applicant's specification at least at page 6, lines 4-6, where it explains that the data 102-106 may be stored in accordance with a standard archival format.

VanRooven is directed toward a method and system for failsafe recovery and upgrade of an operating system embedded within a peripheral or consumer electronic device. Abstract of VanRooven. In its Background section, VanRooven gives a general summary of operating systems, explaining that they contain software programs and routines that provide an interface between the processing hardware of a computer system and the users of that capability, such as human users, application programs and other devices. VanRooven at col. 1, lines 14-37. VanRooven also explains that as the capabilities and requirements of peripheral devices, such as printers, have increased, the concept of embedded operating systems in such devices has emerged. VanRooven at col. 1, lines 38-47. These embedded operating systems internally manage peripheral and consumer electronic devices just as computer operating systems manage computer systems. VanRooven at col. 1, lines 47-54.

VanRooven explains that embedded operating systems, or the critical components of them (i.e. the kernel), had previously been stored in read-only memory (ROM) due the lower failure rate of ROM as compared to mass storage devices and due to ROM being non-volatile as compared to random access memory (RAM). VanRooven at col. 2, lines 13-29. Also, a data environment for the operating system, called a file system, which included less-frequently invoked routines and data files, was previously stored in mass-storage of the peripheral and consumer electronic devices. VanRooven at col. 2, lines 29-37. Because both reads and writes were allowed to the mass-storage, sufficient robustness of the data was difficult to achieve. VanRooven at col. 2, lines 36-41. In addition, VanRooven points out that ROM is not a perfect solution either because it is expensive, small in capacity and relatively expensive and time-consuming to update. VanRooven at col. 2, lines 49-50.

VanRooven proposes a solution in which a read-only disk partition (referred to as the "/boot" partition) stores a failsafe copy of an initial operating system kernel, a compressed archive file containing the data environment and operating system routines that are sufficient to boot up and install an embedded operating system. VanRooven at col. 2, line 67 to col. 3, line 6. A second read-only partition (referred to as the "/dist" partition) stores a backup copy of the compressed archive file. More particularly, Figure 2 of VanRooven shows that the hard disk is partitioned into several partitions, each of which contains a file system. VanRooven at col. 3, line 63 to col. 4, line 16 and at col. 5, lines 34-36. Upon power up or reboot, a file, "failsafe.gz," within the /boot file system is uncompressed into an initial an RAM-disk file system (i.e. the initial operating system kernel). VanRooven at col. 5, line 55 to col. 6, line 1. This initial operating system kernel executes a number of script routines, including "linuxrc" and "install" that check the hard disk for corruption, and if corruption is present, restore the contents of the various file systems. VanRooven at col. 6, lines 18-22. The script routine "install" is called by the script routine "linuxsc." VanRooven at col. 17, lines 49-57 and col. 18, lines 5-10. Therefore, these script routine are initiated to run one after the other. After execution of these script routines, the RAM-disk file system is automatically unmounted and the primary embedded Linux file system is mounted. VanRooven at col. 6, lines 22-24. Following mounting of the primary Linux embedded operating system, a routine "sbin/init" is executed, which then brings up the rest of the embedded Linux operating system. VanRooven at col. 6, lines 27-29.

The office action states that at col. 2, lines 12-64, and Figure 4, VanRooven discloses "the program including at least a first routine for responding to a first request type for access to the data storage medium and a second routine for responding to a second request type for access to the data storage medium," as is recited in applicant's claim 1. However, as explained above, in its Background section at col. 2, lines 12-41, VanRooven discusses that prior embedded operating systems use ROM for storing certain information and mass storage for storing other information. And, at col. 2, lines 42-63, VanRooven explains that ROM is an expensive component, small in capacity, and is relatively expensive and time-consuming to update and, thus, VanRooven further explains that there is a need for robustly storing an embedded operating system within an electronic device without using ROM memory and without using complex software or software and hardware solutions. Further, Figure 4 of VanRooven shows "two important restoration operations that may be carried out by script routines executed by the initial OS kernel." VanRooven at col. 6, lines 35-37. Particularly, if the initial OS kernel determines that the file "primary.tar" in the file system "/dist" is damaged or corrupt, then the initial OS kernel can recreate this file by uncompressing the file "primary.tar.gz.; however, if the file "primary.tar.gz" has been corrupted, then the initial OS kernel can replace the corrupted file "primary.tar.gz" with a copy of the file "primary.tar.gz" on the file system "/boot". VanRooven at col. 6, lines 37-45.

The applicant submits that none of these portions of VanRooven that are being relied upon disclose "the program including at least a first routine for responding to a first request type for access to the data storage medium and a second routine for responding to a second request type for access to the data storage medium." While VanRooven does disclose multiple script routines, VanRooven does not disclose that one of these script routines is for "responding to a first request type for access to the data storage medium" nor that another of these routines is for "responding to a second request type for access to the data storage medium." Rather, the script routines "install" and "linuxsc" are initiated to run one after the other to check the hard disk for corruption, and if corruption is present, to restore the contents of the various file systems. VanRooven at col. 6, lines 18-22 and col. 18, lines 5-10.

For at least this reason, claim 1 is allowable over VanRooven.

The office action states that in Figure 2 and col. 5, lines 35-60, VanRooven discloses a step of "receiving a request for access to data stored on the data storage

medium," as is recited by applicant's claim 1. The applicant respectfully disagrees. As explained above, Figure 2 of VanRooven shows that the hard disk is partitioned into several partitions, each of which is a file system. And, at col. 5, lines 35-60, VanRooven discusses the file systems of Figure 2, including the file system "failsafe.gz," which is loaded upon power up or reboot and executes a number of script routines. These portions of VanRooven do not disclose "receiving a request for access to data..." as recited by applicant's claim 1. Instead, the routines of "failsafe.gz" appear to be loaded and executed automatically with any request having been received.

This is another reason why claim 1 is allowable over VanRooven.

The office action states that at col. 4, lines 55-67, and col. 5, lines 1-62, VanRooven discloses a step of "determining whether the request is of the first type or the second type," as is recited by applicant's claim 1. The applicant respectfully disagrees. Rather, at col. 4, lines 55-66, VanRooven discusses mount commands for the various file systems and, at col. 4, line 67 to col. 5, line 33, VanRooven discusses attributes of the various file systems. These portions of VanRooven do not disclose any "determining" step as in applicant's claim 1. As explained above, VanRooven does not disclose "receiving a request for access to data..." as is also recited by applicant's claim 1; therefore, VanRooven cannot disclose "determining whether the request is of the first type or the second type." (Emphasis added).

This is yet another reason why claim 1 is allowable over VanRooven.

The office action states that at col. 2, lines 12-40, and col. 18, lines 5-10, VanRooven discloses a step of "calling the first routine for accessing the data when the request is of the first type and calling the second routine for accessing the data when the request is of the second type," as is recited by applicant's claim 1. The applicant respectfully disagrees. As was explained by the applicant in response to several of the prior office actions, the "first routine" and the "second routine" of claim 1 are alternatives such that, for a particular request, one of the routines is selected for accessing the data based on the type of the request. This is clear because claim 1 recites the step of "determining whether the request is of the first type or the second type" prior to the step of "calling" the first routine or the second routine. However, at col. 18, lines 5-10, VanRooven states that the script routine "install" is called by the script routine "linuxsc." Accordingly, both routines are initiated to run one after the other since one calls the other. Therefore, VanRooven does not disclose routines that

are alternatives, nor does VanRooven disclose selecting among these alternatives based on a type of a received request.

Further, at col. 2, lines 12-29, which is part of the Background section of VanRooven, VanRooven explains that embedded operating systems, or the critical components of them (i.e. the kernel), had previously been stored in read-only memory (ROM). And, at col. 2, lines 49-50, which is also in the Background section of VanRooven, VanRooven explains that a data environment for the operating system, called a file system, which included less-frequently invoked routines and data files, was previously stored in mass-storage. Therefore, this portion of VanRooven also does not disclose routines that are alternatives, nor does VanRooven disclose selecting among these alternatives based on a type of a received request.

Therefore, it can be seen that these portions of VanRooven, which are relied upon in the office action, do not disclose the claimed step of "calling" one of two alternative routines. This is another reason why claim 1 is allowable.

Moreover, for anticipation to occur, the identical invention must be shown in as complete detail as is contained in the claim and the elements of the claim must be arranged as required by the claim. Manual of Patent Examining Procedure at Section 2131 (citations omitted). In the rejection of claim 1, the office action relies upon portions of VanRooven that are contained in the Background section of VanRooven, which VanRooven discusses as having drawbacks, and other portions of VanRooven, which are directed toward the invention of VanRooven. Accordingly, these portions of VanRooven do not disclose a single embodiment of an embedded operating system, but instead, discuss entirely different approaches to embedded operating systems. As such, these portions of VanRooven do not disclose the elements of applicant's claim 1 as arranged in the claim.

This is another reason why claim 1 is allowable.

Claims 2-4 and 6-14 are allowable at least because each depends from an allowable base claim 1.

The examiner rejected independent claims 15, 22 and 25 for essentially the same reasons as claim 1. As amended, claim 15 recites an article of manufacture comprising a computer usable medium having data stored thereon and having computer readable program code stored thereon, the computer readable program code including a first routine for accessing the data in response to a request for access to the data in an archival format and a second routine for accessing the data in response

to a request for access to the data in a non-archival format. The amendments to claim 15 replace the phrase "as one or more raw data blocks" with the phrase "in an archival format," This feature is supported by the applicant's specification at least at page 6, lines 4-6, where it explains that the data 102-106 may be stored in accordance with a standard archival format. The amendments to claim 15 also replace the phase "as a file structure" with the phrase "in a non-archival format." It will be apparent that the described file structure is a non-archival format. Claim 16 is amended to be consistent with the amendments to claim 15.

Claim 22 recites an article of manufacture comprising a computer usable medium having data stored thereon and having computer readable program code stored thereon, the computer readable program code including a first routine for accessing the data in response to a request from a first target system type and a second routine for accessing the data in response to a request from a second target system type.

As explained above, VanRooven does not disclose that any request for access to data is received. Rather, the file systems and script routines of VanRooven are loaded automatically. Accordingly, VanRooven does not disclose a first routine for accessing the data in response to a request for access to the data, or a second routine for accessing the data in response to a request for access to the data, as are recited in applicant's claims 15 and 22. For at least this reason, claims 15 and 22 are allowable.

Moreover, while VanRooven does disclose file systems, VanRooven does not appear to disclose both a routine for accessing data in an archival format and a routine for accessing the data in an non-archival format, as recited by applicant's claim 15. This is another reason why claim 15 is allowable.

Claim 22 recites a first routine for accessing data in response to a request from a first target system type and a second routine for accessing the data in response to a request from a second target system type. VanRooven does not disclose both a first target system type and a second target system type, as is recited in applicant's claim 22. Therefore, VanRooven does not disclose first and second routines for accessing data where the routine to be used is based on whether the request is from the first target system type or the second target system type. This is another reason why claim 22 is allowable.

Moreover, the "first routine" and the "second routine" of claims 15 and 22 are alternatives such that, for a particular request, one of the routines is selected for

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accessing the data based on the request. This is another reason why claims 15 and 22 are allowable.

Claims 16-21 and 23-24 are allowable at least because they are dependent from an allowable base claim 15 or 22.

As amended, claim 25 recites an article of manufacture comprising a computer usable data storage medium having data stored thereon and having computer readable program code stored on secondary storage associated with the data storage medium, the computer readable program code including a first routine for accessing the data in response to a request of a first request type and a second routine for accessing the data in response to a second request type, wherein the secondary storage is built into a cartridge for the data storage medium.

Therefore, claim 25 requires a computer usable data storage medium having data stored thereon and having computer readable program code stored on secondary storage associated with the data storage medium wherein the secondary storage is built into a cartridge for the data storage medium. The office action indicates that VanRooven teaches that "the secondary storage is built into a cartridge for the data storage media" somewhere among: Figures 1, 2 and 4; col. 1, lines 15-35; col. 2, lines 12-64; col. 5, lines 35-60; col. 6, lines 18-35; and col. 29, lines 15-48. The applicant has studied these portions of VanRooven and can find no such teaching. For at least this reason, claim 25 is allowable. Before persisting in this rejection, the examiner is respectfully requested to state with specificity where in VanRooven this claim feature is allegedly taught.

In addition, similarly to claims 1, 15 and 22, the "first routine" and the "second routine" of claim 25 are alternatives such that, for a particular request, one of the routines is selected for accessing the data based on the type of the request. As explained above, VanRooven does not disclose such a feature. This is another reason why claim 25 is allowable.

Rejections under 35 U.S.C. § 102:

Claim 5 is rejected as being obvious in view of VanRooven and U.S. Pub. No. 2002/0152194 by Sathyanarayan (hereinafter "Sathyanarayan"). Claim 5 is dependent from claim 1. Claim 1 is allowable over the cited references for the reasons stated above. The applicant submits that Sathyanarayan does not suggest or

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disclose the features of claim 1 which are missing from VanRooven. Therefore, for at least this reason, claim 5 is allowable.

New Claims:

New claims 27 and 29 recite that the data is stored on the data storage medium as one or more raw data blocks. This feature is supported by the applicant's specification at least at page 6, lines 4-6. New claims 27 and 29 are allowable at least because each depends from an allowable base claim 1 or 15.

New claims 28, 30, 32 and 33 recite that the data storage medium is removable. This feature is supported by the applicant's specification at least at page 2, lines 15-16 and page 4, lines 18-21, where several specific examples of the data storage medium are given. Clearly, some of these examples are removable. New claims 28, 30, 32 and 33 are allowable at least because each depends from an allowable base claim 1, 15, 22 or 25.
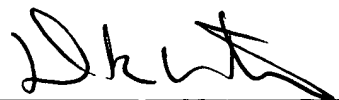
New claim 31 recites that the data is stored in accordance with an archival format. This feature is supported by the applicant's specification at least at page 6, lines 4-6. Claim 31 is allowable at least because is depends from an allowable base claim 22.

Conclusion:

In view of the above, the applicant submits that all of the pending claims are now allowable. Allowance at an early date would be greatly appreciated. Should any outstanding issues remain, the examiner is encouraged to contact the undersigned at (408) 293-9000 so that any such issues can be expeditiously resolved.

Respectfully Submitted,

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